

Please amend the claims as follows:

1. A bacterial autoinducer, [characterized in that it has substantially] having the following properties:

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- i) it is produced in response to noradrenaline in serum SAPI medium;
 - ii) it is heat stable;
 - iii) it is stable to lyophilisation;
 - iv) it has a negative charge;
 - v) it is polar;
 - vi) it is hydrophilic;
 - vii) it will not partition into organic solvents;
 - viii) it is capable of binding positively charged metal ions;
and
 - ix) it has a molecular weight of about 300-1500 daltons.

2. A bacterial autoinducer according to claim 1, further [characterized in having at least one of] having the following [characteristics] further properties:

- i) it has absorbtion maxima at 255,325 and 500-550nm; and
- ii) it is stable in prolonged storage in a dried state and/or in solution.

3. A bacterial autoinducer according to [either] claim[s] 1 [or 2], further [characterized in having at least one of] having the following [characteristics] further properties:

- i) it is produced in substantially smaller quantities by bacteria grown in LURIA broth, Tryptone, soy broth, M9 minimal medium and Davis-Mingioli minimal medium than by the same bacteria grown in serum SAPI medium;
- ii) it has a reddish-pink colour, reversibly decolorisable by

- reducing the pH to <4;
- iii) it contains serine;
 - iv) its synthesis involves the entA and entB gene products;
 - v) its synthesis is not stimulated by conditions of Fe starvation;
 - vi) it is synthesised in conditions of excess Fe;
 - vii) its entry into bacteria occurs via a tonB dependent receptor;
 - viii) it is inactivated by oxidation;
 - ix) it is inactivated by extreme pH; and
 - x) it is resistant to degradation by ribonuclease, deoxyribonuclease, trypsin, pepsin, V8 protease, proteinase K, acid phosphates, alkaline phosphates, and phosphodiesterase.

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4. A bacterial autoinducer according to [any one of the preceding claims] claim 1, being an *E.Coli*, *Salmonella* or *Hafnia alvei* autoinducer.

5. A method for isolating and purifying a bacterial autoinducer, comprising the steps of:

- i) collecting a sample containing [the] an autoinducer;
- ii) fractioning the sample to isolate fractions corresponding to molecular weights of approximately 300-1500 Daltons; and
- iii) eluting the isolate of (ii) on an anion-exchange chromatographic column and selecting the fraction containing the autoinducer.

B9 10. A method according to [any one of] claim[s] 5[-9], wherein the

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B. subtilis sample being collected is from a culture containing bacteria and the autoinducer.

C 12. A method according to [any one of] claim[s] 5[-11], ^{wherein said fractionating step} further comprises ~~comprising~~ performing a size exclusion gel filtration [being performed] using a buffer of approximately 100 mM ammonium bicarbonate, pH 8.0, ^{said eluting step comprises} and performing an anion exchange purification [being performed] on an anion exchange column and triethylammonium bicarbonate.

C *C* *C* *B7D* 13. A method according to [any one of] claim[s] 5[-11], ^{wherein said fractionating step} further comprises ~~comprising~~ performing a size exclusion gel filtration [being performed] using a buffer of approximately 20 mM potassium phosphate containing 150 mM NaCl, pH 7.4, ^{said eluting step comprises} and performing an anion exchange purification [being performed] on an anion exchange column and NaCl gradient.

14. A method according to [any one of] claim[s] 5[-13] wherein the bacterium from which the autoinducer is derived [being] is *E. Coli*, *Salmonella* or *Hafnia alvei*.

RESPONSE

Formal corrections of the noted defects in the drawings will be deferred until the application is allowed by the examiner. The contents the specification have been amended to include section headings as suggested by the examiner. The section headings listed by (b), (c), (d), (i) and (l) were not added as they were already in the specification or unnecessary. The abstract of the disclosure was amended to comprise 50-250 words.

Claims 1-4 were rejected under 35 U.S.C. 112, second paragraph

as, being vague and indefinite. The rejected claims have been amended and the words "characterized" and "substantially" were deleted from the claims. Claims 5-15 were also rejected under 35 U.S.C. 112, second paragraph as being vague and indefinite. Claim 5 was amended so the recitation of "autoinducer" would have proper antecedent basis. Claims 6-15 depend on claim 5.

Claims 15 and 16 were canceled rendering any rejection of these claims moot.

Based upon the above amendments, claims 1-14 are thought to be allowable and an early notification of the same would be appreciated.

Respectfully submitted,

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